USER INSTRUCTIONS

WALL HUNG RSF GAS FIRED CONDENSING REGULAR BOILER

Greenstar Ri Compact

FOR OPEN VENTED AND SEALED CENTRAL HEATING SYSTEMS AND INDIRECT MAINS FED DOMESTIC HOT WATER

These appliances are for use with : Natural Gas or L.P.G. (Cat. II 2H 3P type C13, C33 & C53)		
	Model	**GC Number**
Natural Gas	27Ri Compact	41-406-17
	30Ri Compact	41-406-19
L.P.G.	27Ri Compact	41-406-18
	30Ri Compact	41-406-20

UK/IE

6 720 648 729 (2013/05)

WORCESTER
Bosch Group

PREFACE

PLEASE READ THESE INSTRUCTIONS CAREFULLY

These instructions are applicable to the Worcester, Bosch Group boiler model stated on the front cover only.

These instructions apply in the UK/IE only and must be followed except for any statutory obligation.

After installation please leave this User instruction Manual, Installation, Commissioning and Servicing Instructions and completed Benchmark Checklist with the user.

DEDICATED TO HEATING COMFORT

Thank you for purchasing a Greenstar gas-fired condensing regular boiler manufactured by Worcester, Bosch Group. The company prides itself on manufacturing boilers to the strictest quality control standards throughout every stage of production.

Worcester, Bosch Group has led the field in innovative boiler design and performance for 50 years. This heritage means all our products are of exceptional quality and proven reliability.

The Greenstar range in particular is extremely energy efficient, offering you economical running costs and value for money. It sits in SEDBUK 2005 Band A, and is therefore amongst the top energy rated boilers available.

There is also the reassurance of our no-nonsense 2 years parts and labour guarantee - backed up by Worcester Total Cover, an optional complete maintenance scheme to keep your boiler operating at peak condition and efficiency.

CONTENTS

1 Symbols and safety precautions 4
1.1 Explanation of symbols 4
1.2 Safety precautions 5

2 General Information 6

3 Controls 7
3.1 Operating the boiler 8
3.1.1 Setting the boiler flow temperature 8
3.1.2 Boiler frost protection 8
3.1.3 Turning the central heating off during the summer 8
3.1.4 Boiler reset 9

4 System Pressure 10
4.1 Open vented heating systems 10
4.2 Sealed heating systems 10
4.3 External filling loop 11

5 Service Clearances 12

6 Maintaining your Boiler 12

7 Fault Finding 13
7.1 Extreme cold weather 14

8 Fault or Breakdown 15

9 Tips on energy saving 16

10 Your guarantee 17

11 Glossary 18

12 Environment / disposal 19

1 SYMBOLS AND SAFETY PRECAUTIONS

1.1 EXPLANATION OF SYMBOLS

WARNING SYMBOLS

Safety instructions in this document are framed and identified by a warning triangle which is printed on a grey background.

Signal words indicate the seriousness of the hazard in terms of the consequences of not following the safety instructions.

- **NOTICE** indicates possible damage to property or equipment, but where there is no risk of personal injury.
- **CAUTION** indicates possible personal injury.
- **WARNING** indicates possible severe personal injury.

IMPORTANT INFORMATION

Notes contain important information in cases where there is no risk of personal injury or material losses and are identified by the symbol shown on the left. They are bordered by horizontal lines above and below the text.

ADDITIONAL SYMBOLS

Symbol	Meaning
1.	a numbered step in an action sequence
►	a step in an action sequence
(1)	a reference number to identify or refer to a part or item
•	a list entry
–	a list entry (second level)

Table 1 Symbols

1.2 SAFETY PRECAUTIONS

IF YOU SMELL GAS

A gas leak could potentially cause an explosion. If you smell gas, observe the following rules.

- ▶ Prevent flames or sparks:
  - – Do not smoke, use a lighter or strike matches.
  - – Do not operate any electrical switches or unplug any equipment.
  - – Do not use the telephone or ring doorbells.
- ▶ Turn off the gas at the meter or regular.
- ▶ Open windows and doors.
- ▶ Warn your neighbours and leave the building.
- ▶ Prevent anyone from entering the building.
- ▶ Well away from the building: call the National Gas Emergency Service on 0800 111 999.
- ▶ L.P.G. boilers: Call the supplier's number on the side of the gas tank.

BOILER OPERATION:

This boiler must only be operated by a responsible adult who has been instructed in, understands and is aware of the boiler's operating conditions and effects.

COMBUSTIBLE AND CORROSIVE MATERIALS:

Chemically aggressive substances can corrode the boiler and invalidate any warranty.

- Do not store or use any combustible materials (paper, thinners, paints, propellants, cleaning agents etc.) inside or within the vicinity of the appliance.

FITTINGS AND MODIFICATIONS:

Only a competent engineer can remove the boiler case and carry out any work, in accordance with the Gas Safety (Installation and Use) Regulations.

- Do not remove the boiler case.

Any misuse or unauthorised modifications to the boiler, flue or associated accessories and heating system will invalidate the warranty.

- Do not modify the boiler or flue system in any way.

Worcester, Bosch Group accepts no liability arising from any such actions. This does not affect your statutory rights.

2 GENERAL INFORMATION

SERVICING

Ensure that the service engineer completes the Service Record in the Benchmark Checklist after each service. The Benchmark Checklist and service interval record can be found at the rear of the Installation, Commissioning and Servicing Instructions.

- The boiler must be serviced regularly by a competent, qualified person, such as a Worcester service engineer or other Gas Safe registered engineer.
- Always use original spares, to help maintain the efficiency, safety and reliability of the boiler and have the Service Record completed in the Benchmark Checklist.

The completed Benchmark Checklist will be required in the event of any warranty work and may be required by the local Building Control Inspector.

BENCHMARK STANDARD

The Benchmark initiative is a code of practice to encourage the correct installation, commissioning and servicing of domestic central heating boilers and system equipment.

A “checklist” is dispatched with every boiler. This is a vital document that needs to be completed by the installer at the time of installation. It confirms that the boiler has been installed and commissioned according to the manufacturer's instructions.

The log book provides space for the recording of regular servicing of the boiler/heating system and this can become a valuable document when, for example, you wish to sell the property. The log book will show a potential purchaser that the heating system has received regular professional maintenance and servicing during its lifetime.

The Benchmark initiative aims to:

- Raise standards among professional installers
- Build and maintain high safety standards in the industry
- Improve customer satisfaction levels
- Make a contribution to the nation's commitment to climate change

3 CONTROLS

► To gain access to the boiler controls pull the flap down using the curved flap handle.

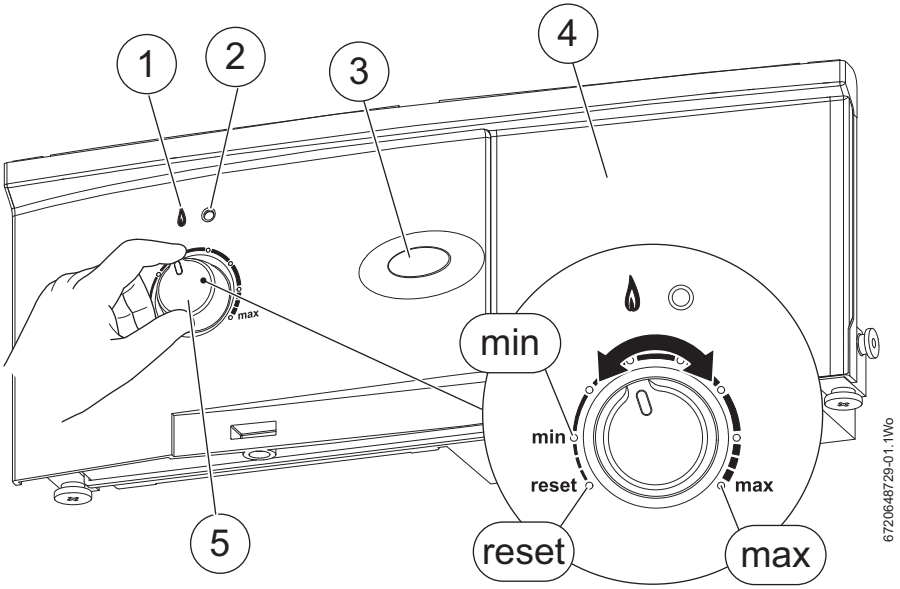

Fig. 1 Basic boiler controls

Boiler Controls	1	Flame/Burner symbol
	2	Flame/Burner ON indicator (green)
	3	Operational/fault indicator (blue). The blue light is ON when the boiler is in an operational mode. It will also flash to indicate a fault.
	4	Position for optional programmer
	5	Central heating temperature control incorporating reset position

3.1 OPERATING THE BOILER

3.1.1 SETTING THE BOILER FLOW TEMPERATURE

1. Turn the central heating temperature control knob to the desired level.
   The temperature range available is between 30 and 82°C. This not the room temperature but the flow temperature through the radiators.
   The “click” point provides guidance for the maximum temperature setting for optimum energy efficiency.
2. When there is a demand for heat from the boiler, the burner indicator will be illuminate to indicate that the boiler is firing.
   The blue operational/fault light will also be illuminated, to confirm that the boiler is operational.

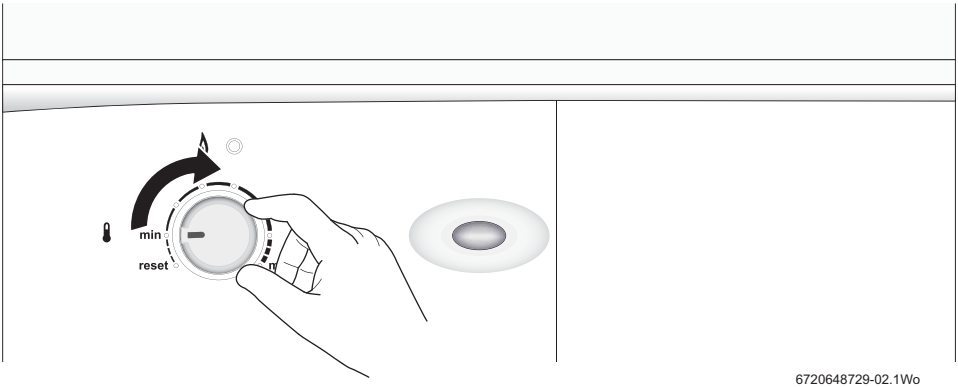

Fig. 2 Central heating temperature control

▶ Comfort levels within rooms should be controlled by your thermostatic radiator valves and/or room thermostat.

3.1.2 BOILER FROST PROTECTION

If you are leaving your property unoccupied during cold weather, please leave your programmer on constant and your room thermostat set to 15°C.

▶ If the temperature within the boiler falls below 8°C the pump will run to circulate water and prevent the system freezing.
  – If the temperature does not rise to 9°C within 30 minutes of the pump operating, the boiler will fire up to provide heat to bring the temperature up.

▶ If the temperature within the boiler falls below 5°C the boiler will fire, bringing the boiler temperature up to 12°C to avoid the possibility of the system freezing.

▶ This process will be repeated until such time that the boiler temperature does not drop below 5°C.

3.1.3 TURNING THE CENTRAL HEATING OFF DURING THE SUMMER

▶ Turn your programmer/timer to the off position.

▶ Please refer to the programmer/timer manufacturer's instructions.

3.1.4 BOILER RESET

In the event of a fault the operation/fault indicator will flash.

To reset the boiler:

1. Turn the Central heating control knob fully anti-clockwise to the reset position and hold there for five seconds and then return the control knob to back to the original setting.
2. When the boiler resets, the blue operation/fault light will no longer be flashing and the boiler will function normally, dependant on the room thermostat and optional programmer.

- ▶ A reset fault condition will still exist even if the electrical power to the boiler has been interrupted. Reset the boiler as described above.
- ▶ If the reset is not successful then the fault indicator will continue to flash.

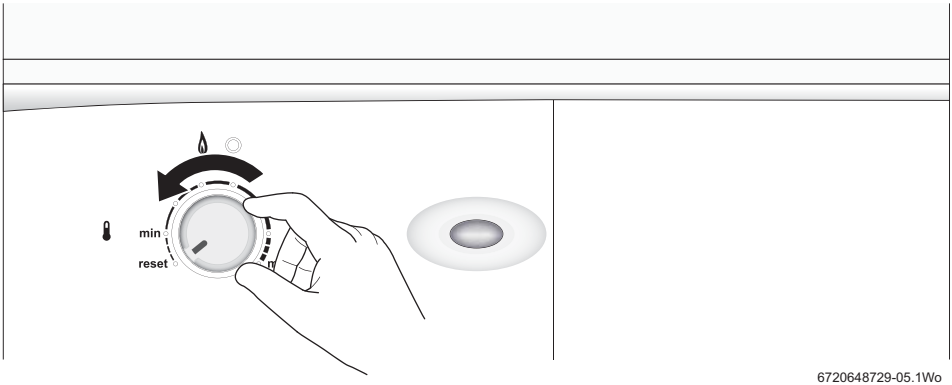

Fig. 3 Reset

If the fault remains and cannot be cleared by resetting the boiler, then contact Worcester, Bosch Group for assistance on 0844 892 3000.

4 SYSTEM PRESSURE

4.1 OPEN VENTED HEATING SYSTEMS

If the boiler is fitted to an open vented system, that is a system with a header tank, the pressure will be maintained automatically.

4.2 SEALED HEATING SYSTEMS

If this boiler is fitted to a sealed heating system, the system will be pre-pressurised.
Your installer will have fitted a pressure gauge and filling loop so that the system can be monitored and adjusted as necessary.

Your installer will show you how to use the filling loop and advise you of the minimum and maximum pressure indicated on the pressure gauge.

- ▶ Check regularly that the pressure is maintained.

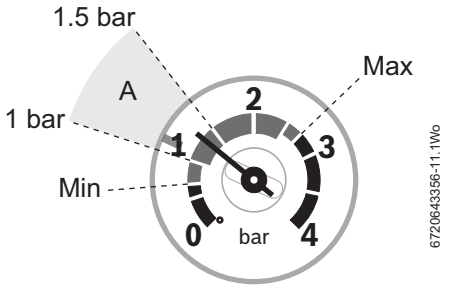

Fig. 4 Optimum system pressure when your boiler is cold (area A)

- ▶ Contact your installer or maintenance engineer if a permanent significant decrease or increase in pressure is indicated on the pressure gauge.

The filling method will be an external filling loop, fitted valves and flexible hose.

NOTICE: To comply with the Water Authority regulations you must disconnect the external filling loop after re-pressurisation.

4.3 EXTERNAL FILLING LOOP

NOTICE: External filling loops

- If the filling loop does not look like the one shown in the figure below or you cannot find your filling loop, contact your installer.

Once the external filling loop has been located, follow the instructions for re-pressurising the system.

1. Unscrew blanking cap.
2. Attach the hose to the valves, screw on hand-tight.
3. Turn the handle/screwdriver slot through 90° to open the valves.
4. The handle/screwdriver slot will be in-line with the valves

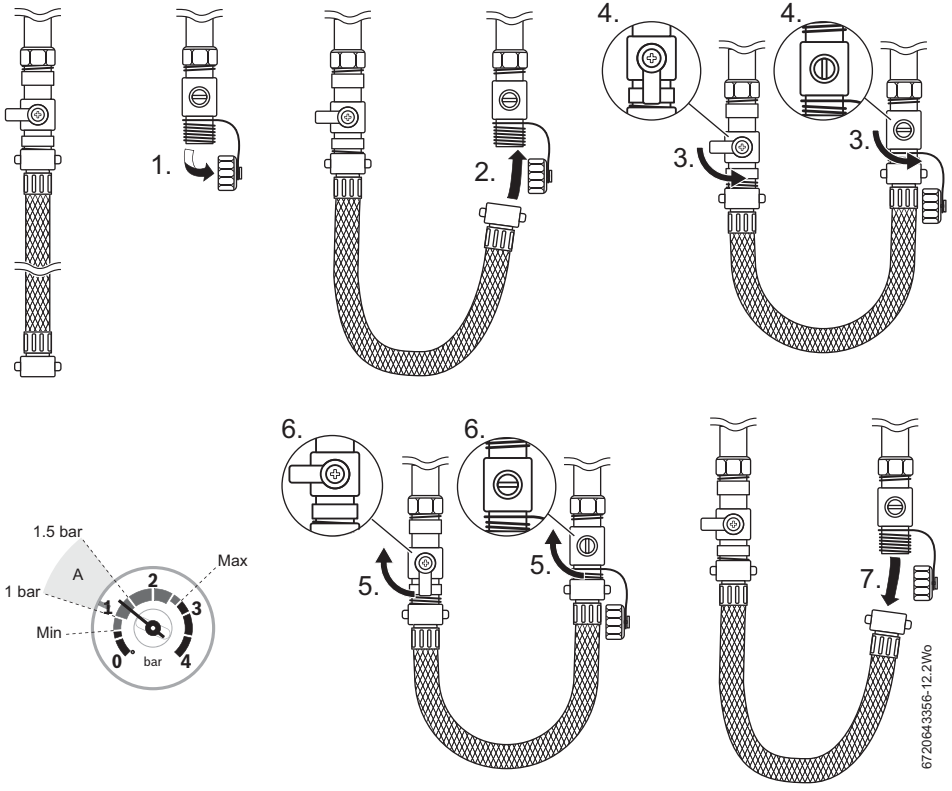

Fig. 5 External filling loop

5. When the pressure reaches between the 1 and 1.5 bar marks (zone A), turn the handle/screwdriver slot back, through 90°, to close the valve.
6. The handle/screwdriver slot will be at 90° to the valves
7. Remove the hose and replace the blanking caps.

If the pressure gauge reads more than 1.5 bar as a result of over filling, bleed one radiator until the pressure gauge returns to between 1 and 1.5 bar.

5 SERVICE CLEARANCES

Your installer will have provided adequate space around the boiler for safety and servicing access.

CAUTION: Restricted space.
The boiler may overheat.
► Do not restrict this space with the addition of cupboards, shelves etc. next to the boiler.

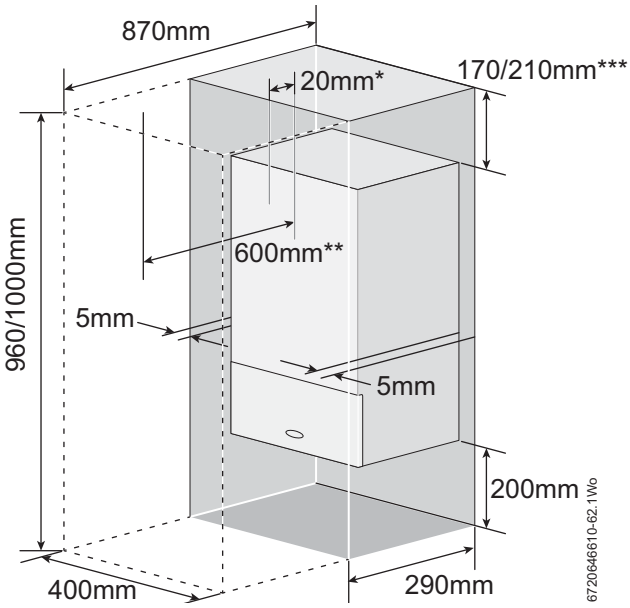

Fig. 6 Service clearances

*	Minimum clearances to removable door
**	Minimum clearance required for servicing
***	Height for either 60/100 flue or 80/125 flue

6 MAINTAINING YOUR BOILER

Your new Greenstar gas-fired regular boiler represents a long term investment in a reliable, high quality product.

In order to realise its maximum working life, and to ensure it continues to operate at peak efficiency and performance, it is essential that your boiler receives regular servicing and maintenance checks from a competent person beyond the initial 2 year guarantee period.

If you would like to know more about a Worcester, Bosch Group service contract, please tick the appropriate box on your warranty registration card.

If your Greenstar gas-fired boiler should fail to operate correctly or requires servicing please contact the Worcester, Bosch Group Appointments Team (see rear cover for details).

Details of the boiler including the Gas Council number can be found on the front cover of these User Instructions and on the boiler identification label on the boiler fascia.

The Gas Council number is also listed on the front cover of your Installation, Commissioning and Servicing Instructions.

7 FAULT FINDING

In the event that the boiler stops functioning or does not perform as expected, you can carry out a few simple checks. These checks are some of the most common causes of apparent faults and are listed in the table below. Should the problem persist or other alert codes are displayed, then it will be necessary to contact Worcester, Bosch Group.

Problem	Cause	Remedy
Operation/fault light (blue) flashing	No gas supply/low gas supply pressure	▶ Contact your gas supplier.
	Condensate outlet blocked	▶ If it is safe to do so, check your condensate pipe outlet for blockages, such as ice or foreign objects.
	Flue blocked	▶ If it is safe to do so, check your flue outlet for damage or blockages.
Desired room temperature is not reached	Thermostatic radiator valve(s) set too low	▶ Increase thermostatic radiator valve setting(s)
	Temperature control for central heating flow on boiler set too low	▶ Increase central heating flow temperature control setting
	Air trapped in heating system	▶ Bleed radiators and recharge heating system
	Low system water pressure	▶ Re-pressurise the system, refer to page 11
	Low temperature setting on the boiler controls	▶ Increase settings on boiler controls
Desired room temperature too high	Radiators are too hot	▶ Turn down thermostatic radiator valves/room thermostat ▶ Reduce central heating temperature by turning down the Central Heating control on boiler
Heating stays on for too long	Clock is incorrectly set	▶ Check setting and adjust
No blue Operation/Fault Indicator	Momentary power failure	▶ Disconnect boiler supply, wait a few seconds then reconnect.

Table 2 Fault finding

7.1 EXTREME COLD WEATHER

In some instances where the condensate pipe work is run externally or in an unheated area, such as a garage, the condensate pipe work can be at risk of freezing, even if well insulated.

A frozen/blocked condensate pipe will cause the boiler to shut down.

WARNING: Falling hazard!

Failure to follow this guidance may result in personal injury.

- ▶ Only attempt to thaw a condense pipe that is at ground level, and that is easily accessible.
- ▶ Never attempt to thaw a condense pipe that is at height.

CAUTION: Pipe damage

- ▶ **DO NOT** use boiling water to thaw the condensate pipe!

If the condensate pipe has frozen:

- ▶ Locate the blockage.
  It is likely that the pipe is frozen at the most exposed point outside the building or where there is an obstruction to flow.
  This could be the open end of the pipe, at a bend or elbow, or where there is a sag in the pipe in which condensate can collect.
  The location of the blockage should be identified as closely as possible before taking further action.
- ▶ Thaw the frozen pipe.
  The pipe can be thawed by applying a hot water bottle, a microwaveable heating pack (the sort used for muscular aches and pains) or a cloth soaked in hot water to the exterior of the pipe, close to the point of blockage.
  Hot water, but not boiling, can also be poured onto the pipe from a watering can or similar container.
- ▶ Once the pipe has been thawed the boiler must be reset, refer to page 9.
  Wait two to three minutes for the boiler to restart.
- ▶ If the boiler does not restart, contact Worcester, Bosch Group appointments team on: 0844 892 3000.
- ▶ Contact your installer in order to find a permanent solution to the problem.

8 FAULT OR BREAKDOWN

This boiler is supported in the UK and Eire by Worcester, Bosch Group.

Specialist Service Engineers are available to attend a breakdown occurring on this boiler.

Invoices for attendance and repair work carried out on this boiler by any third party will not be accepted.

- No charge will be made for parts and/or labour providing:
  A boiler fault is found and the appliance has been installed within the past 24 months. Reasonable evidence of this must be supplied on request. i.e. the Benchmark Checklist.
- A call-out charge will be made where:
  - The boiler has been installed for over 24 months.
  - Evidence cannot be provided that the first year service inspection has been carried out (i.e. an entry in the Benchmark Checklist).
  - Our Field Service Engineer finds no fault with the boiler.
  - The cause of breakdown is misuse or with other parts of your plumbing/heating system, or with equipment not supplied by Worcester, Bosch Group.

TECHNICAL SUPPORT

No boiler fault is found on over 30% of all service calls.
In the case of a suspected fault, refer to the fault finding section of this guide.

In the event of a boiler fault or breakdown please contact Worcester, Bosch Group appointments team on 0844 892 3000. Your advisor will arrange for an engineer to call with the minimum of delay; under normal circumstances this will be from 1 - 3 working days (excluding weekends) for priority breakdown situations (no hot water and/or heating).

9 TIPS ON ENERGY SAVING

HEATING ECONOMICALLY

The boiler provides a high level of comfort whilst keeping gas consumption and environmental effects as low as possible.

The gas supply to the burner is controlled according to the level of demand for heat. The boiler operates with a low flame if the demand for heat reduces. The technical term for this process is modulating control.

Modulating control reduces temperature fluctuations and provides an even distribution of heat throughout the home. This means that the boiler may stay on for relatively long periods of time but will use less gas than a boiler that continually switches on and off.

CENTRAL HEATING SYSTEMS WITH ROOM THERMOSTAT/THERMOSTATIC RADIATOR VALVES

With modern heating systems designed around a 20°C heat loss, the optimum setting for a condensing boiler will be approximately mid-position on the second solid bar past the “min”on the central heating temperature control. The system must be balanced correctly and the radiators may need upgrading. This allows the boiler to condense as much as possible when running the central heating system.

The temperature of each room can be set individually (except primary room with the room thermostat) using the thermostatic radiator valves.

ROOM THERMOSTATS

Reducing the setting of the room thermostat by 1°C can reduce fuel consumption by up to 10%.

NEW CONTROL SYSTEMS

Upgrade your heating control system if necessary with the latest equipment available.

ROOF INSULATION

Around 30% of the heat loss from a property is through the roof. Replace any old insulation with new insulation, preferably of around 200mm thickness or more.

WINDOW FRAMES

Single glazed windows, particularly those with steel frames, can lose a great deal of heat. Consideration should be given to replacement with PVCu or wooden framed double glazed units.

RADIATORS

If a radiator is sited underneath a window, its performance will be affected if the curtains are allowed to drape over the radiator. Shelves fitted above or in front of the radiator should also be avoided.

It is advisable to manually adjust all thermostatic radiator valves every 2 - 3 months to prevent them sticking. Ensure radiator valves are correctly set and not damaged.

DRAUGHTS

Try to ensure that draughts around doors, windows, letter boxes and keyholes etc. are reduced by using a suitable draught excluder.

WARNING: Air vents

- Do not block or seal any air vents that are installed to ensure that the central heating boiler operates safely.

CURTAINS

Lined curtains, or heavier full length curtains can provide excellent insulation. However, always ensure that the curtains do not drape over radiators.

10 YOUR GUARANTEE

This boiler has a guarantee against faulty materials or workmanship for a period of 2 years from the date of installation subject to the following terms and conditions:

- During the period of this guarantee any components of the boiler which are proven to be faulty or defective in manufacture will be exchanged or repaired free of charge by Bosch Thermotechnology Ltd.
- The householder may be asked to prove the date of installation, that the boiler was correctly commissioned and, where appropriate, the first year's service has been carried out to the satisfaction of Bosch Thermotechnology Ltd, when requested. These should be documented as a part of the Benchmark Checklist.
- The boiler has been used only for the normal domestic purposes for which it was designed.

This guarantee does not affect your statutory rights.

GUARANTEE REGISTRATION

Your Greenstar boiler carries a two year guarantee against faulty material or manufacture subject to Terms and Conditions.
To read the full Terms & Conditions please visit us on-line at www.worcester-bosch.co.uk/guarantee. The Guarantee Registration form is available on this same page and can be completed and submitted electronically.
Alternatively please telephone one of our Guarantee Registration advisors on 0844 892 2552.
Your statutory rights are not affected by the manufacturer's guarantee.

FOR YOUR OWN RECORD:

Please ensure that the Benchmark Checklist has been completed by your installer or service engineer.

Model	
Serial No.[1)]	
Type/size	
Date of installation	
Name of Installer	
Telephone number of Installer	

1) See boiler identification label on boiler fascia or Benchmark Checklist in the back of the Installation, Commissioning & Servicing Instructions.

11 GLOSSARY

Central heating systems

All radiators must be heated at an even rate. If the top of a radiator is at a lower temperature than the bottom then it should be bled by releasing air through the bleed screw at the top of the radiator.
Ask your installer to show you how this is done.

If this boiler is fitted to a sealed system and water leaks are found or if excessive bleeding is required, then a service engineer must be contacted to inspect the installation and rectify any fault.

Only additives that are compatible with aluminium may be used in the system. Any incompatible additive used will invalidate the warranty.

Pluming and Condensate drain

This is a condensing boiler and the flue terminal will, at times give out a plume of water vapour. This is quite normal.

The boiler produces condensate which is discharged regularly by a syphon within the boiler via a plastic pipe to a drain. This pipe must not be blocked or altered in any way.

Room thermostat / programmer

A room thermostat / programmer must be fitted to control the central heating. This controls the times and temperatures of the central heating, preventing the boiler from firing unnecessarily. Refer to the instructions supplied with the thermostat and programmer for further information.

Thermostatic radiator valves

Thermostatic radiator valves must be fitted in sleeping accommodation. It is recommended that this type of valve is fitted to all but one of the radiators. The remaining radiator, where the room thermostat is located, must be uncontrolled and left open.

Pump over run function

After the boiler has finished a demand for central heating or hot water, the pump may continue to run for a short while to dissipate the heat from within the boiler.

Pump anti-seizure

If there has been no heating demand for 24 hours the boiler will run the system pump for a few seconds to reduce the possibility of pump seizure during long periods of inactivity.

SEDBUK

Seasonal Efficiency of Domestic Boilers in the UK.

12 ENVIRONMENT / DISPOSAL

Environmental protection is a fundamental corporate strategy of the Bosch Group.
The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed.
We use the best possible technology and materials for protecting the environment taking account of economic considerations.

PACKAGING

We participate in the recycling programmes of the countries in which our products are sold to ensure optimum recycling.
All of our packaging materials are environmentally compatible and can be recycled.

USED APPLIANCES

- All Greenstar gas boilers are 100% recycleable.
  The various assemblies can be easily dismantled and synthetic materials are marked accordingly. Assemblies can therefore be sorted by composition and passed on for recycling.

WORCESTER, BOSCH GROUP:

TECHNICAL SUPPORT:	0844 892 3366
APPOINTMENTS:	0844 892 3000
SPARES:	01905 752571
LITERATURE:	0844 892 9800
TRAINING:	01905 752526
SALES:	01905 752640

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